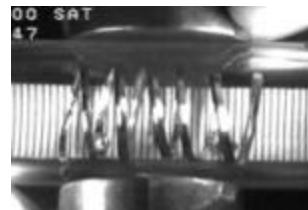
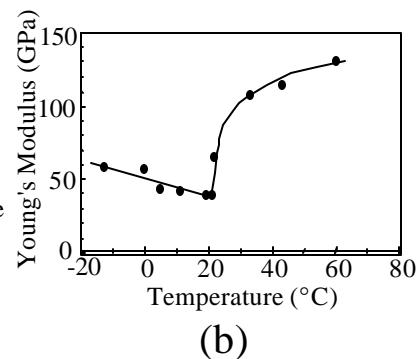
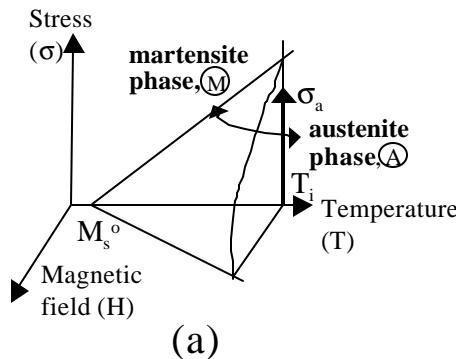


FSMA 3-D Phase Diagram and Hybrid Mechanism

Force (f_i) =
Magnetization of FSMA \times Permeability(μ_0) \times Gradient of H-field

$$s_{ji,j} + f_i = 0 \longrightarrow \text{Stress-Induced Martensitic Transformation}$$



FePd FSMA Actuator Control System

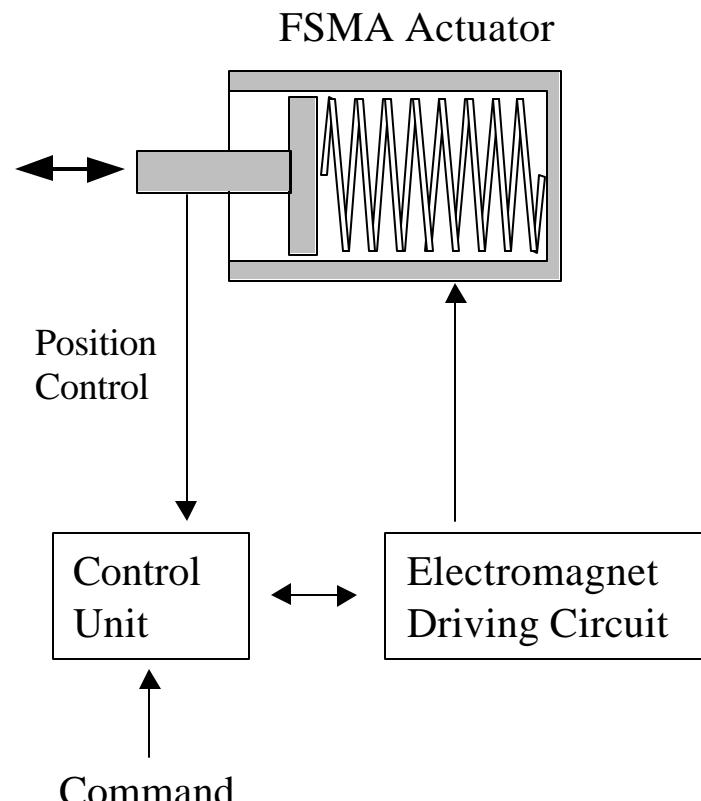


Fig. 1 (a) Phase change by hybrid mechanism of ferromagnetic SMA
 (b) Young's modulus of Fe-Pd as a function of temperature, soft martensite ($E \approx 50$ MPa) and hard austenite ($E \approx 120$ MPa), (c) demonstration of Fe-Pd spring upon magnetic field, off(elongated spring) and (d) on (contracted spring)